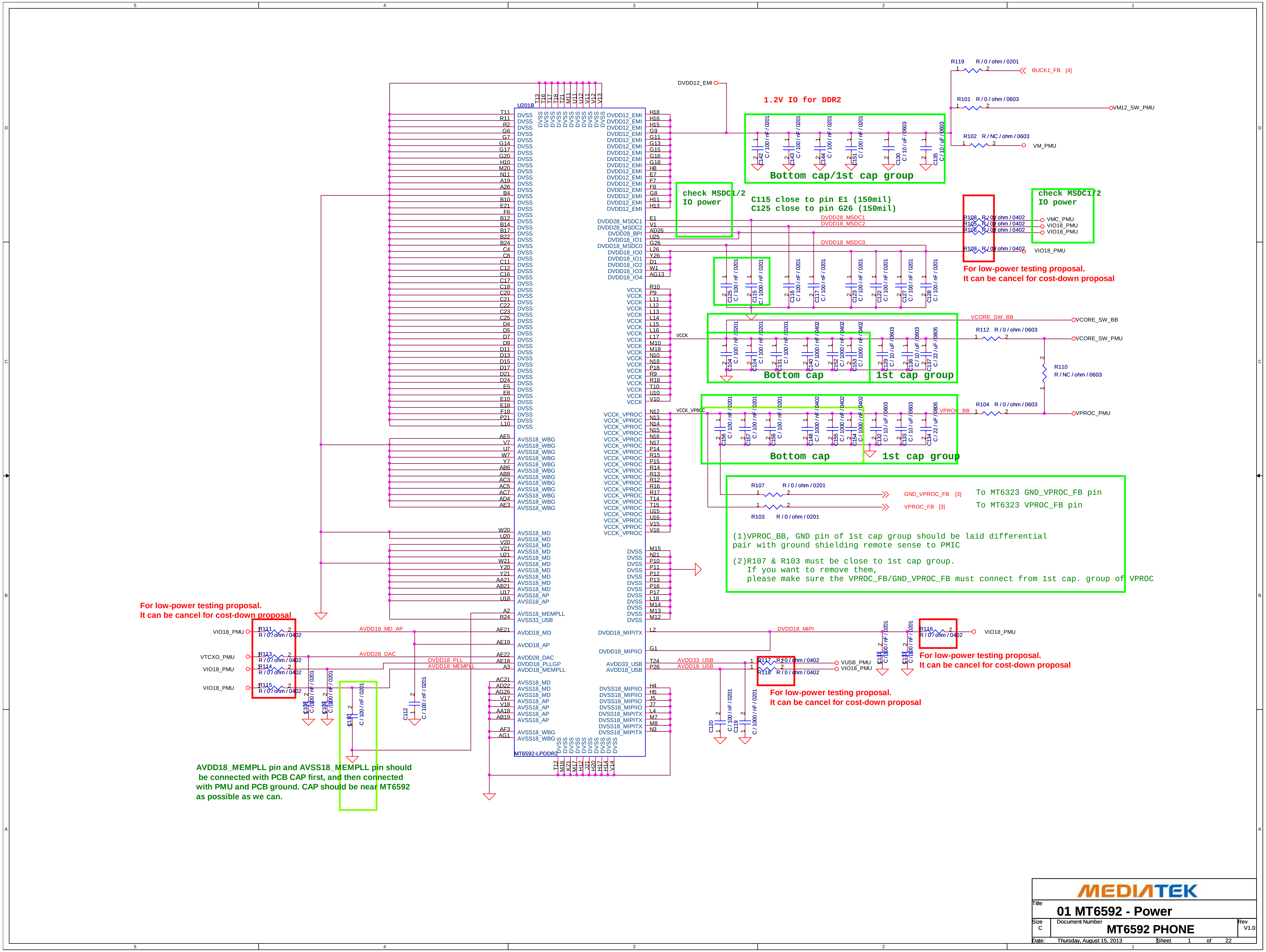

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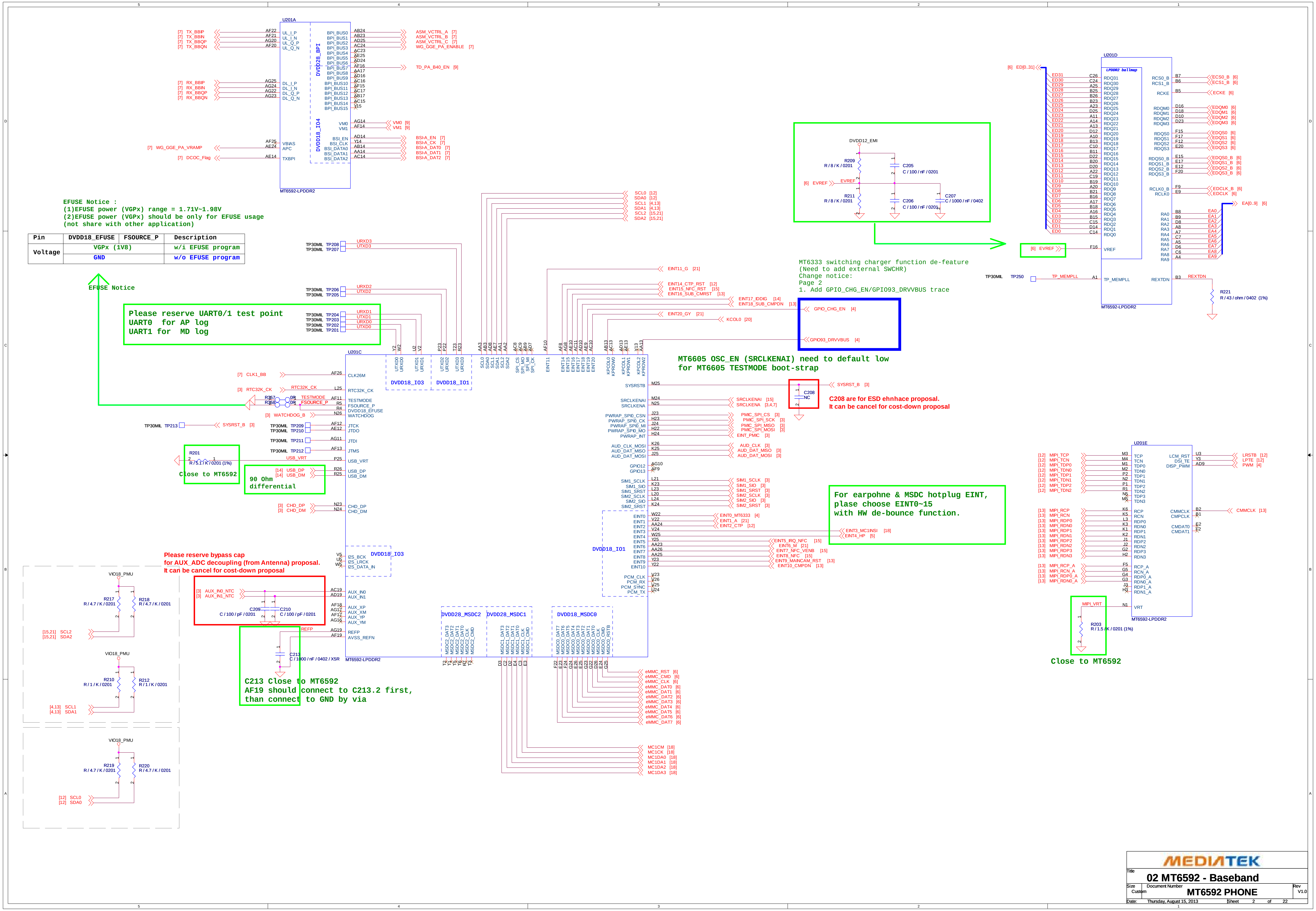

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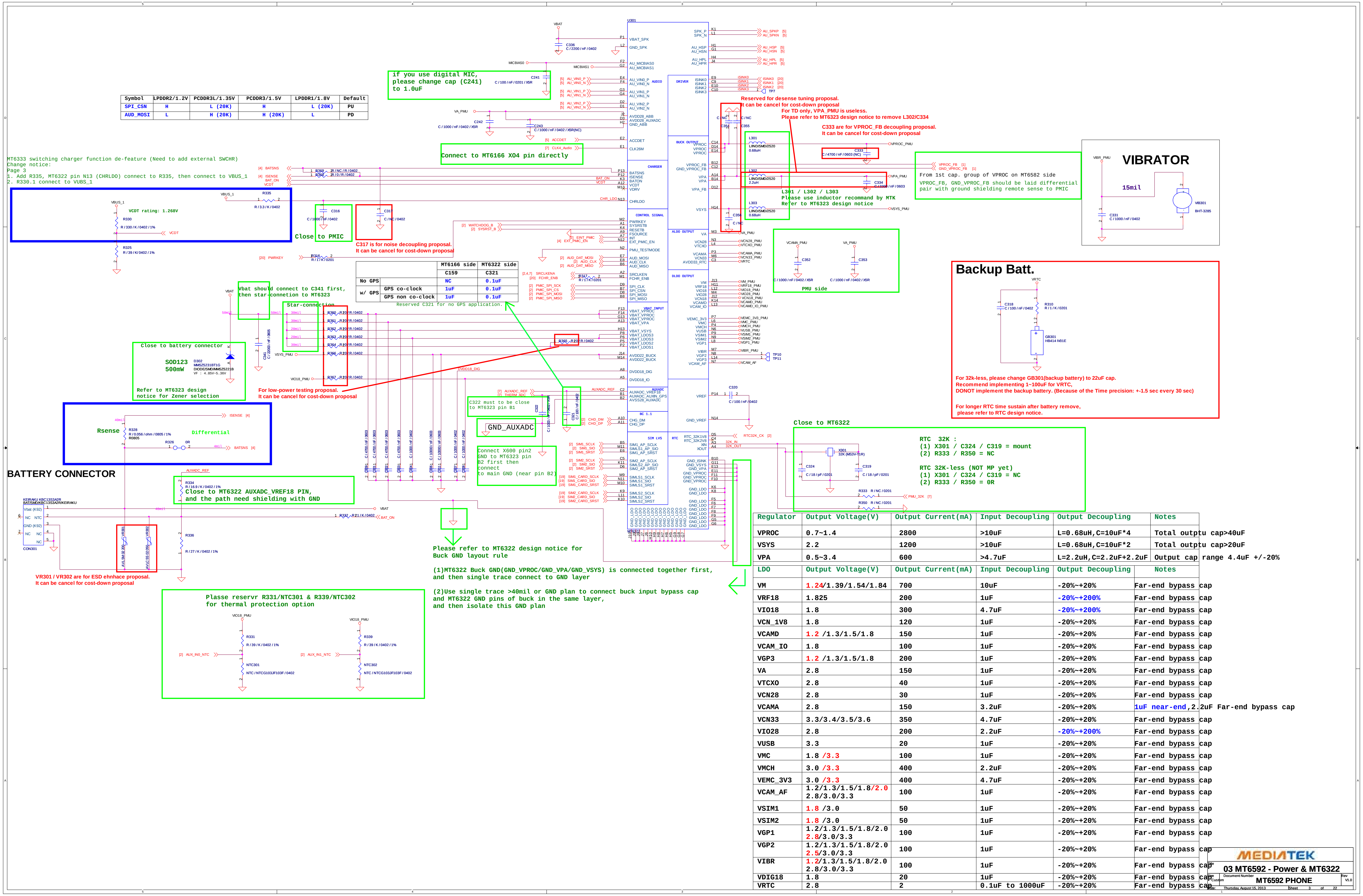

Symbol	LPDDR2/1.2V	PCDDR3L/1.35V	PCDDR3/1.5V	LPDDR1/1.8V	Default
SPI_CSN	H	L (20K)	H	L (20K)	PU
AUD_MOSI	L	H (20K)	H (20K)	L	PD

	MT6166 side	MT6322 side
	C159	C321
No GPS	NC	0.1uF
w/ GPS — GPS co-clock	1uF	0.1uF
w/ GPS — GPS non co-clock	1uF	0.1uF

Regulator	Output Voltage(V)	Output Current(mA)	Input Decoupling	Output Decoupling	Notes
VPROC	0.7~1.4	2800	>10uF	L=0.68uH,C=10uF*4	Total outptu cap>40uF
VSYS	2.2	1200	>10uF	L=0.68uH,C=10uF*2	Total outptu cap>20uF
VPA	0.5~3.4	600	>4.7uF	L=2.2uH,C=2.2uF+2.2uF	Output cap range 4.4uF +/-20%

LDO	Output Voltage(V)	Output Current(mA)	Input Decoupling	Output Decoupling	Notes
VM	1.24/1.39/1.54/1.84	700	10uF	-20%~+20%	Far-end bypass cap
VRF18	1.825	200	1uF	-20%~+200%	Far-end bypass cap
VIO18	1.8	300	4.7uF	-20%~+200%	Far-end bypass cap
VCN_1V8	1.8	120	1uF	-20%~+20%	Far-end bypass cap
VCAMD	1.2 /1.3/1.5/1.8	150	1uF	-20%~+20%	Far-end bypass cap
VCAM_IO	1.8	100	1uF	-20%~+20%	Far-end bypass cap
VGP3	1.2 /1.3/1.5/1.8	200	1uF	-20%~+20%	Far-end bypass cap
VA	2.8	150	1uF	-20%~+20%	Far-end bypass cap
VTCXO	2.8	40	1uF	-20%~+20%	Far-end bypass cap
VCN28	2.8	30	1uF	-20%~+20%	Far-end bypass cap
VCAMA	2.8	150	3.2uF	-20%~+20%	1uF near-end,2.2uF Far-end bypass cap
VCN33	3.3/3.4/3.5/3.6	350	4.7uF	-20%~+20%	Far-end bypass cap
VIO28	2.8	200	2.2uF	-20%~+200%	Far-end bypass cap
VUSB	3.3	20	1uF	-20%~+20%	Far-end bypass cap
VMC	1.8 /3.3	100	1uF	-20%~+20%	Far-end bypass cap
VMCH	3.0 /3.3	400	2.2uF	-20%~+20%	Far-end bypass cap
VEMC_3V3	3.0 /3.3	400	4.7uF	-20%~+20%	Far-end bypass cap
VCAM_AF	1.2/1.3/1.5/1.8/2.0 2.8/3.0/3.3	100	1uF	-20%~+20%	Far-end bypass cap
VSIM1	1.8 /3.0	50	1uF	-20%~+20%	Far-end bypass cap
VSIM2	1.8 /3.0	50	1uF	-20%~+20%	Far-end bypass cap
VGP1	1.2/1.3/1.5/1.8/2.0 2.8/3.0/3.3	100	1uF	-20%~+20%	Far-end bypass cap
VGP2	1.2/1.3/1.5/1.8/2.0 2.5/3.0/3.3	100	1uF	-20%~+20%	Far-end bypass cap
VIBR	1.2/1.3/1.5/1.8/2.0 2.8/3.0/3.3	100	1uF	-20%~+20%	Far-end bypass cap
VDIG18	1.8	20	1uF	-20%~+20%	Far-end bypass cap
VRTC	2.8	2	0.1uF to 1000uF	-20%~+20%	Far-end bypass cap

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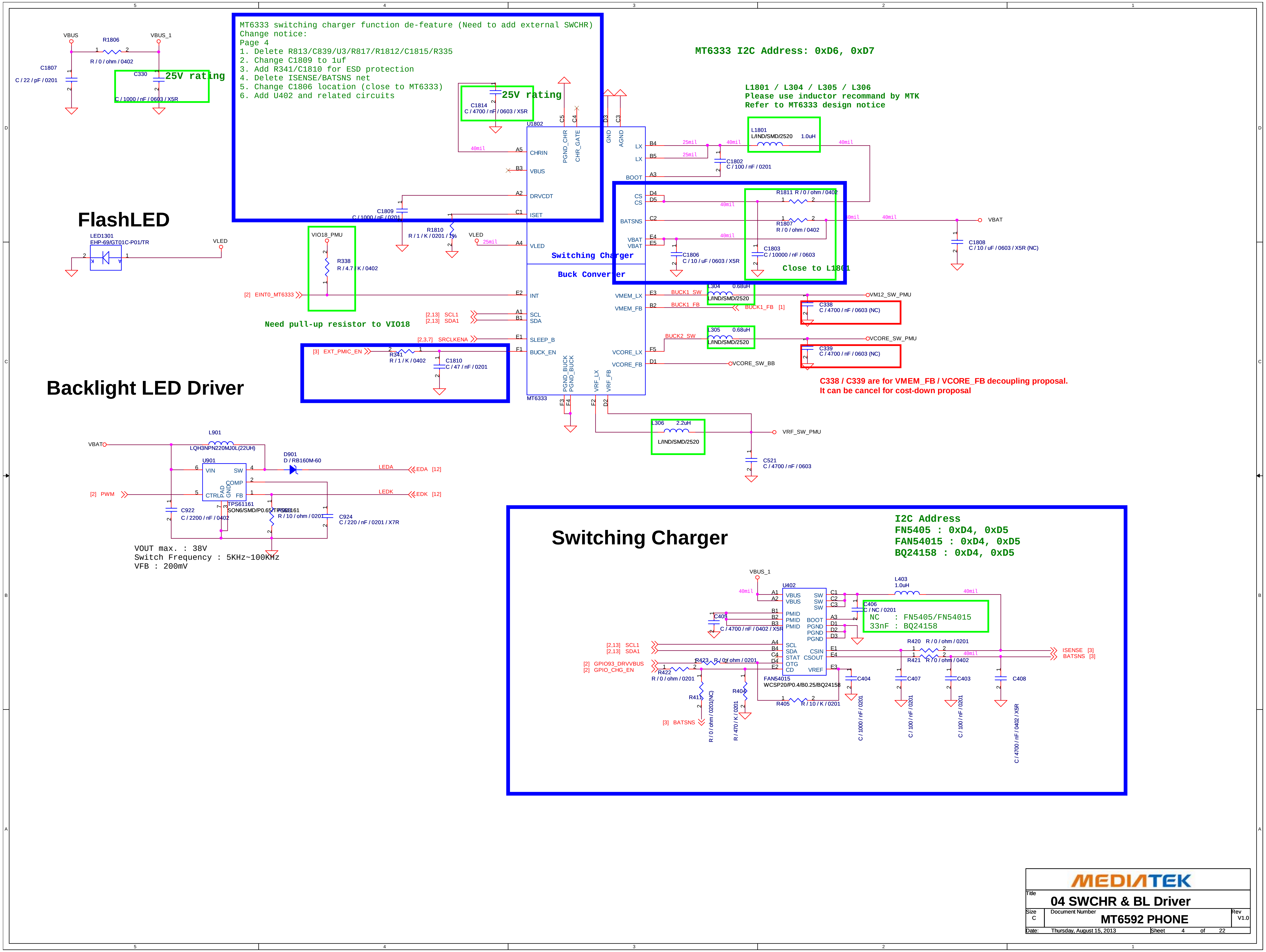

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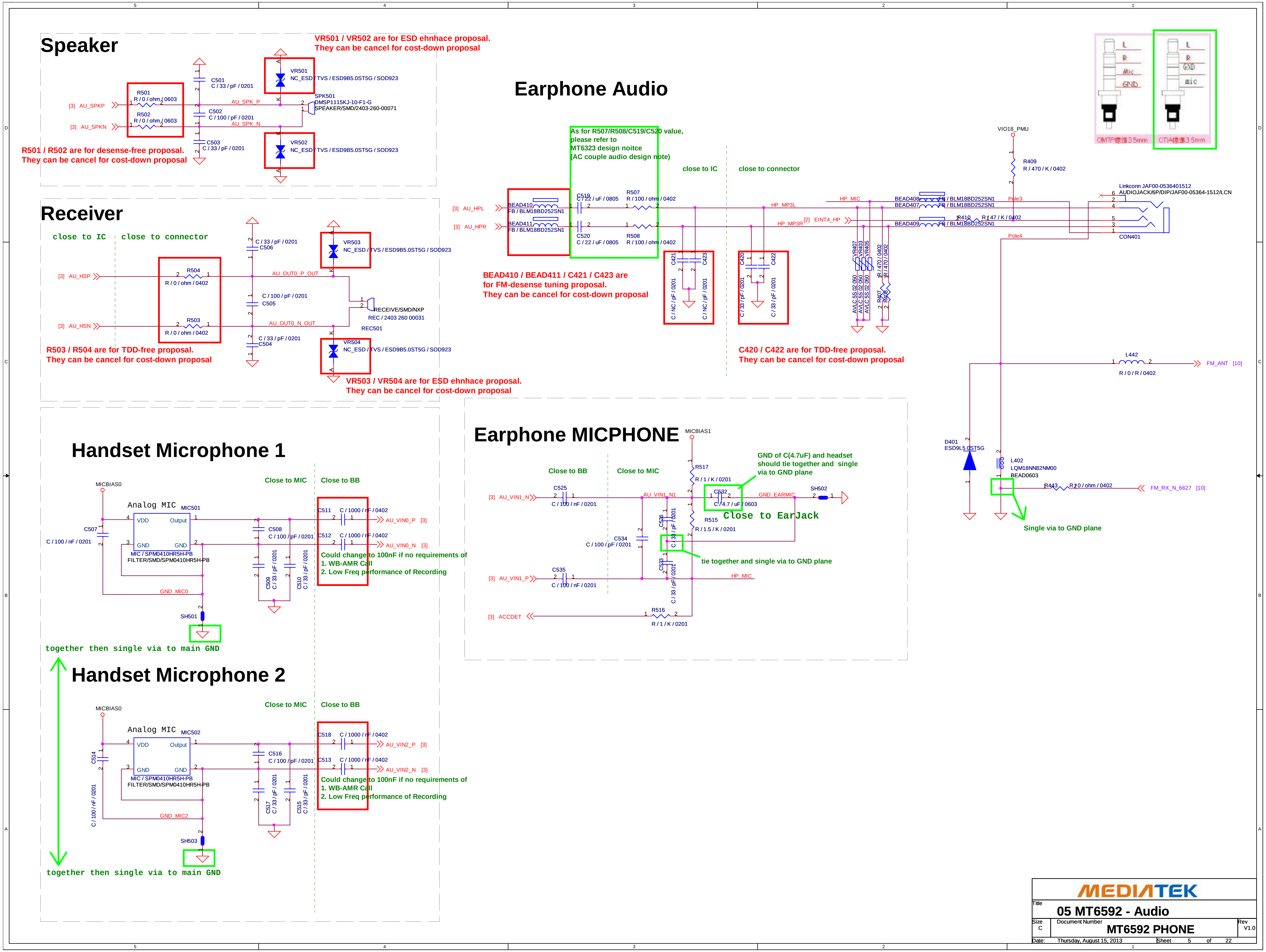

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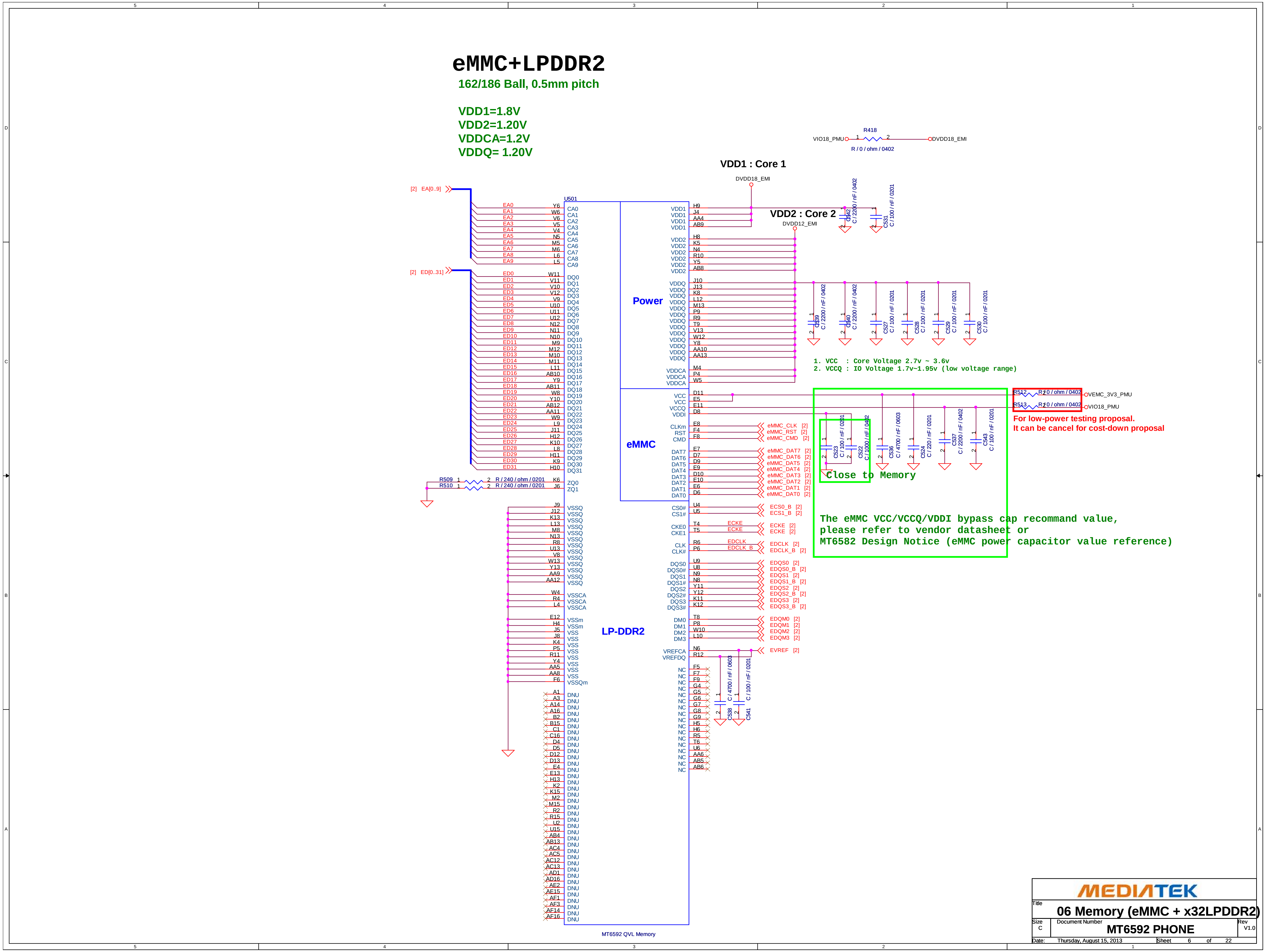

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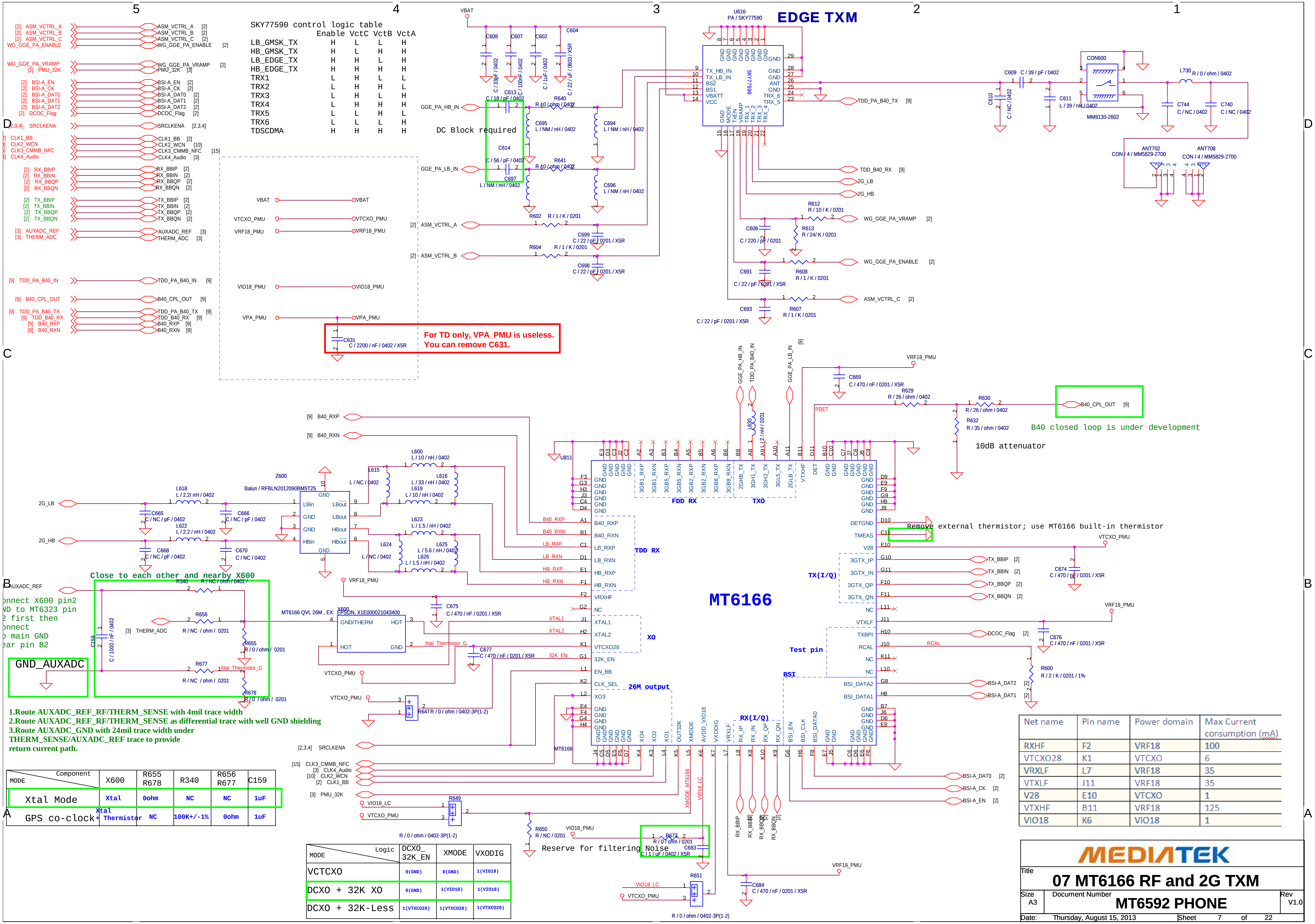

SKY77590 control logic table

	Enable	VctC	VctB	VctA
LB_GMSK_TX	H	L	L	H
HB_GMSK_TX	H	L	H	H
LB_EDGE_TX	H	H	L	H
HB_EDGE_TX	H	H	H	H
TRX1	L	H	L	L
TRX2	L	H	H	L
TRX3	L	H	L	H
TRX4	L	L	H	H
TRX5	L	L	H	L
TRX6	L	L	L	H
TDSCDMA	H	H	H	H

1.Route AUXADC_REF_RF/THERM_SENSE with 4mil trace width
2.Route AUXADC_REF_RF/THERM_SENSE as differential trace with well GND shielding
3.Route AUXADC_GND with 24mil trace width under THERM_SENSE/AUXADC_REF trace to provide return current path.

MODE \ Component	X600	R655 R678	R340	R656 R677	C159
Xtal Mode	Xtal	0ohm	NC	NC	1uF
GPS co-clock	Xtal + Thermistor	NC	100K+/-1%	0ohm	1uF

MODE \ Logic	DCXO_32K_EN	XMODE	VXODIG
VCTCXO	0(GND)	0(GND)	1(VIO18)
DCXO + 32K XO	0(GND)	1(VIO18)	1(VIO18)
DCXO + 32K-Less	1(VTXCO28)	1(VTXCO28)	1(VTXCO28)

Net name	Pin name	Power domain	Max Current consumption (mA)
RXHF	F2	VRF18	100
VTCXO28	K1	VTCXO	6
VRXLF	L7	VRF18	35
VTXLF	J11	VRF18	35
V28	E10	VTCXO	1
VTXHF	B11	VRF18	125
VIO18	K6	VIO18	1

MEDIATEK

Title: 07 MT6166 RF and 2G TXM

Size: A3 | Document Number: MT6592 PHONE | Rev: V1.0

Date: Thursday, August 15, 2013 | Sheet 7 of 22

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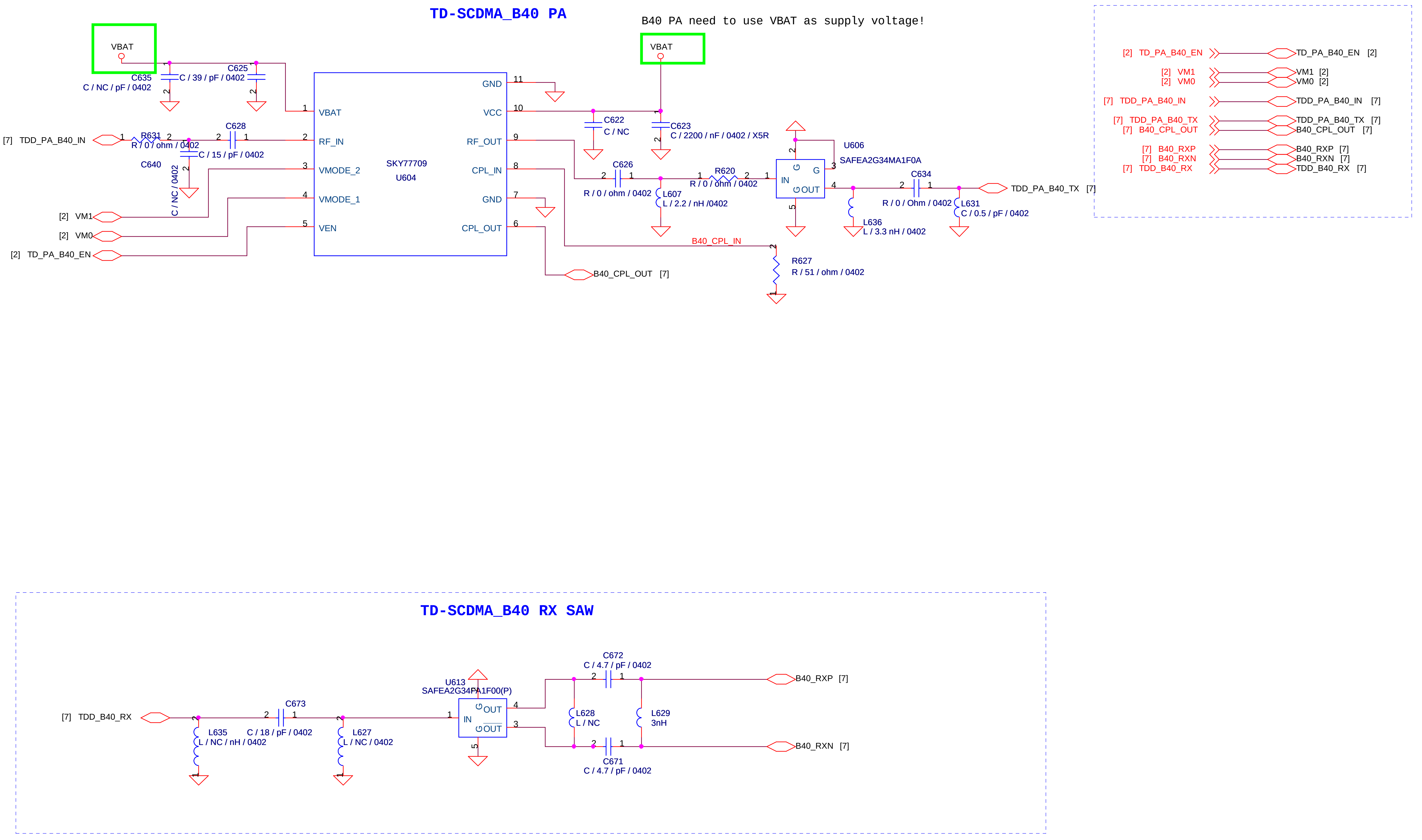


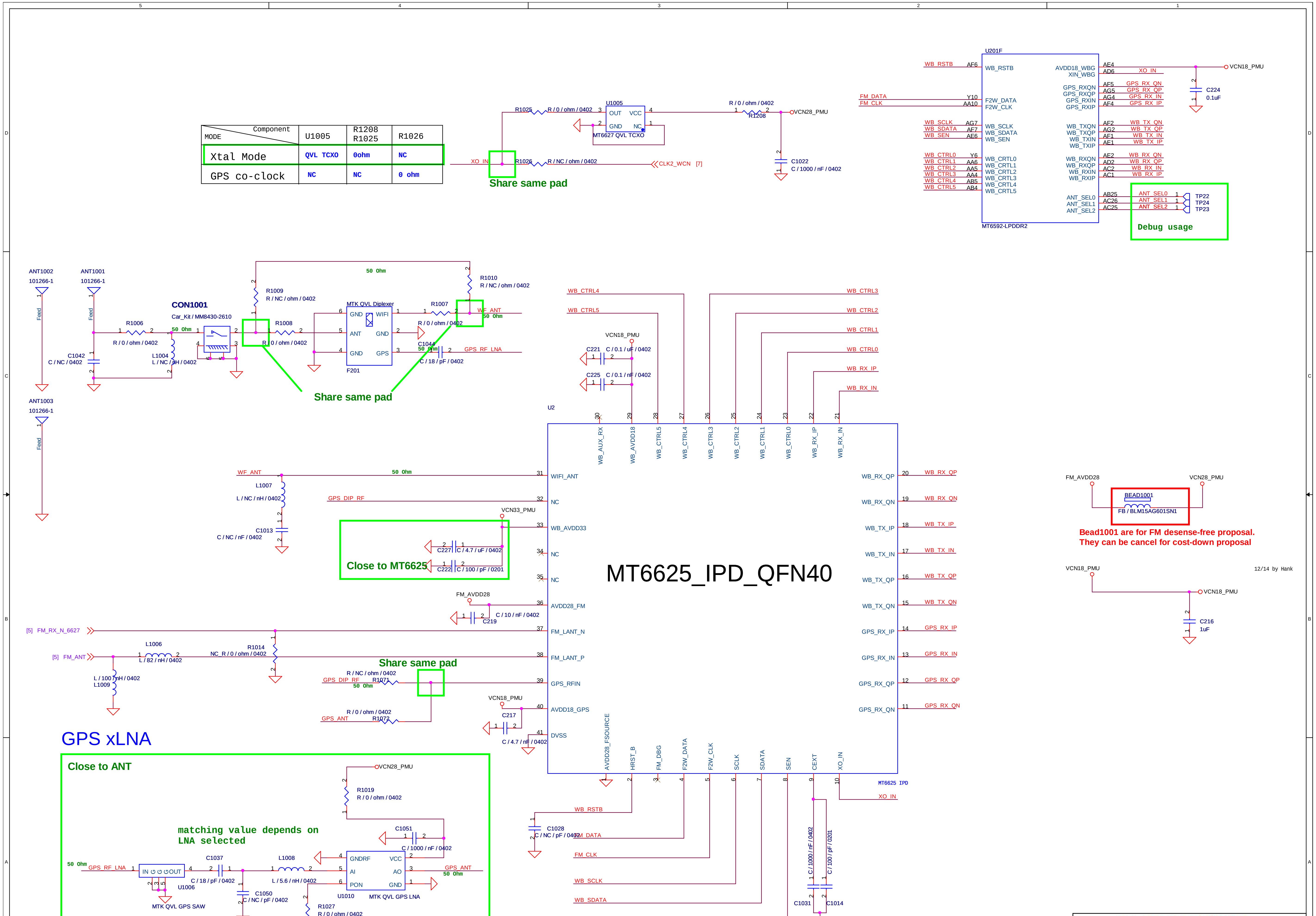
MEDIATEK

Title: **09 MT6166 TD_SCDMA B40**

Size	Document Number	Rev
A3	MT6592 PHONE	V1.0

Date: Thursday, August 15, 2013 — Sheet 9 of 22

PDF created with pdfFactory trial version www.pdffactory.com



MODE \ Component	U1005	R1208 R1025	R1026
Xtal Mode	QVL TCXO	0ohm	NC
GPS co-clock	NC	NC	0 ohm

MEDIATEK

Title: 10 MT6625

Size: C — Document Number: MT6592 PHONE — Rev: V1.0

Date: Thursday, August 15, 2013 — Sheet 10 of 22

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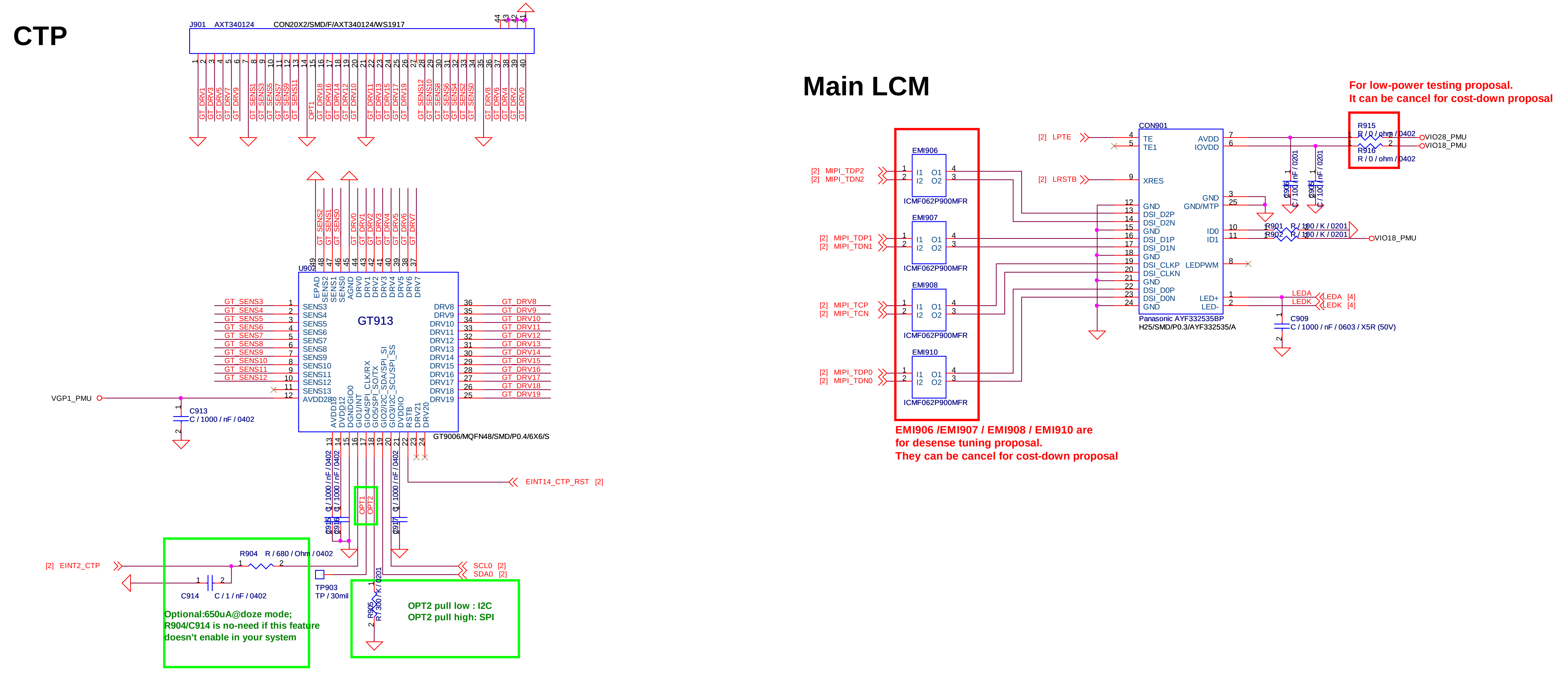

I2C ID
0xBA (power on @INT=low)
0x28 (power on @INT=high)

Sensor ID (identify different TP module)
OPT1/OPT2 need to connect to TP
(please refer to Goodix design notice)

MEDIATEK

Title: 12 LCD, CTP

Size: C | Document Number: MT6592 PHONE | Rev: V1.0

Date: Thursday, August 15, 2013 | Sheet 12 of 22

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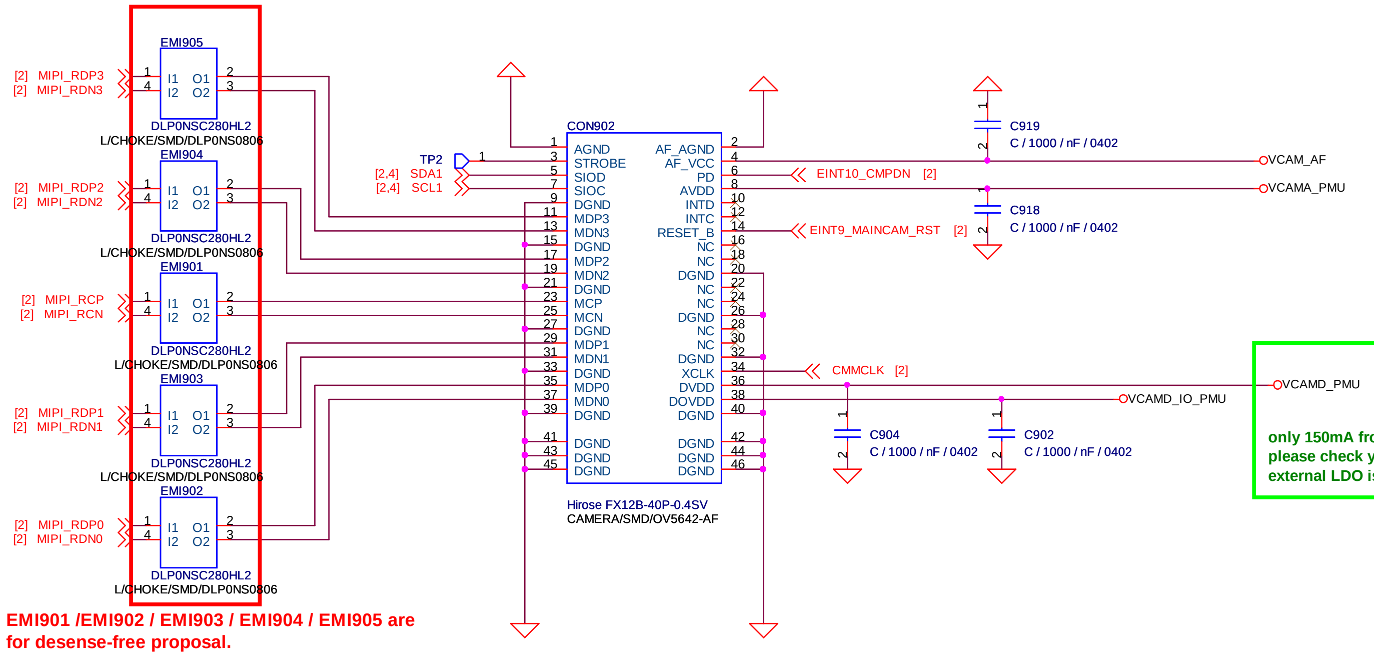
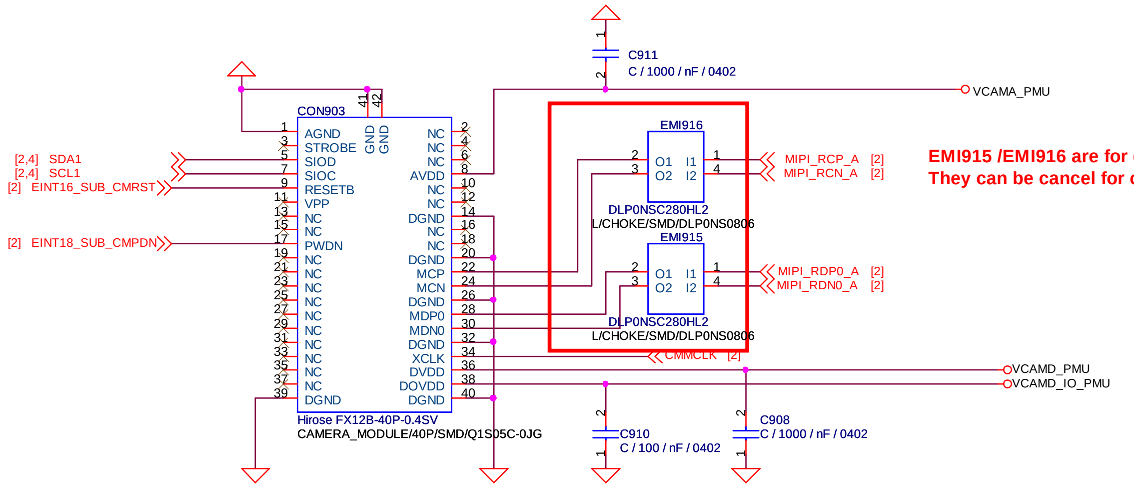
Main Camera



EMI901 /EMI902 / EMI903 / EMI904 / EMI905 are for desense-free proposal. They can be cancel for cost-down proposal

only 150mA from VCAMD please check your CAM module DVDD current. external LDO is required for DVDD current > 150mA

Sub Camera



EMI915 /EMI916 are for desense-free proposal. They can be cancel for cost-down proposal

MEDIATEK

Title	13 Camera
Size: C	Document Number: MT6592 PHONE — Rev V1.0
Date: Thursday, August 15, 2013	Sheet 13 of 22

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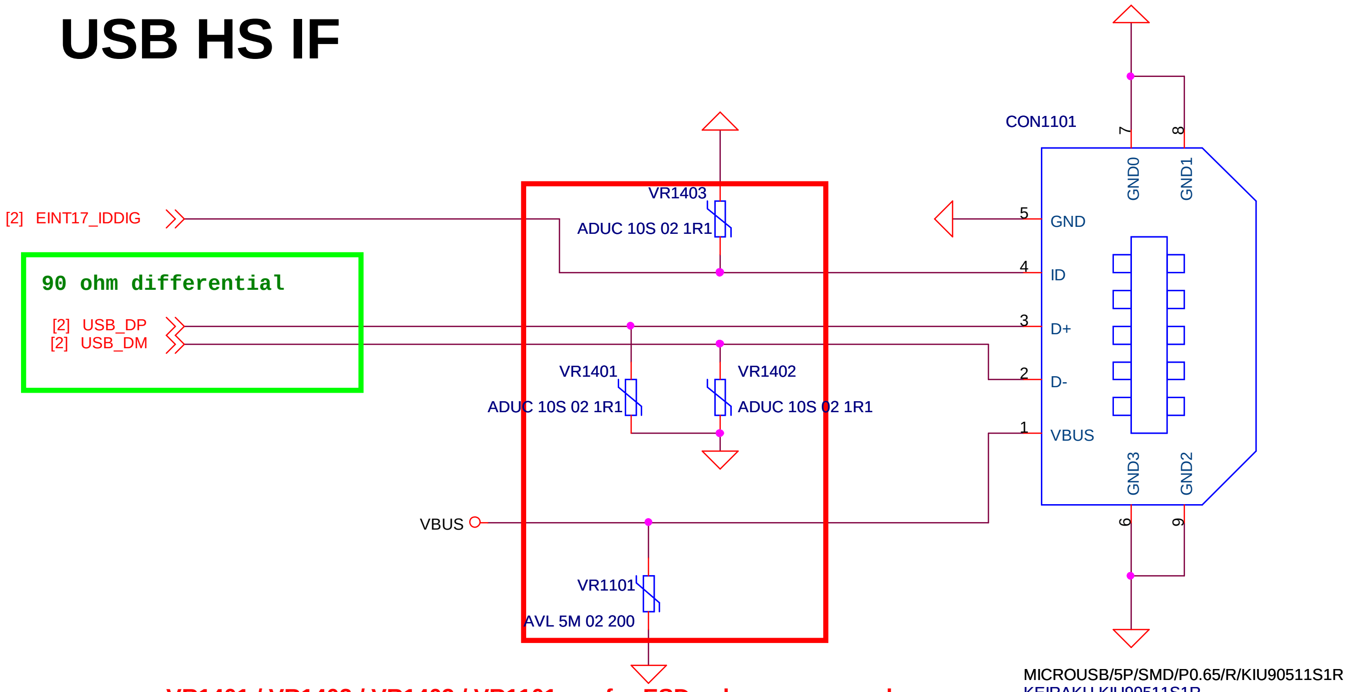
USB HS IF



VR1401 / VR1402 / VR1403 / VR1101 are for ESD enhance proposal.
They can be cancel for cost-down proposal

MEDIATEK

Title	14 USB	
Size: Custom	Document Number: MT6592 PHONE	Rev: V1.0
Date: Thursday, August 15, 2013	Sheet 14 of 22	

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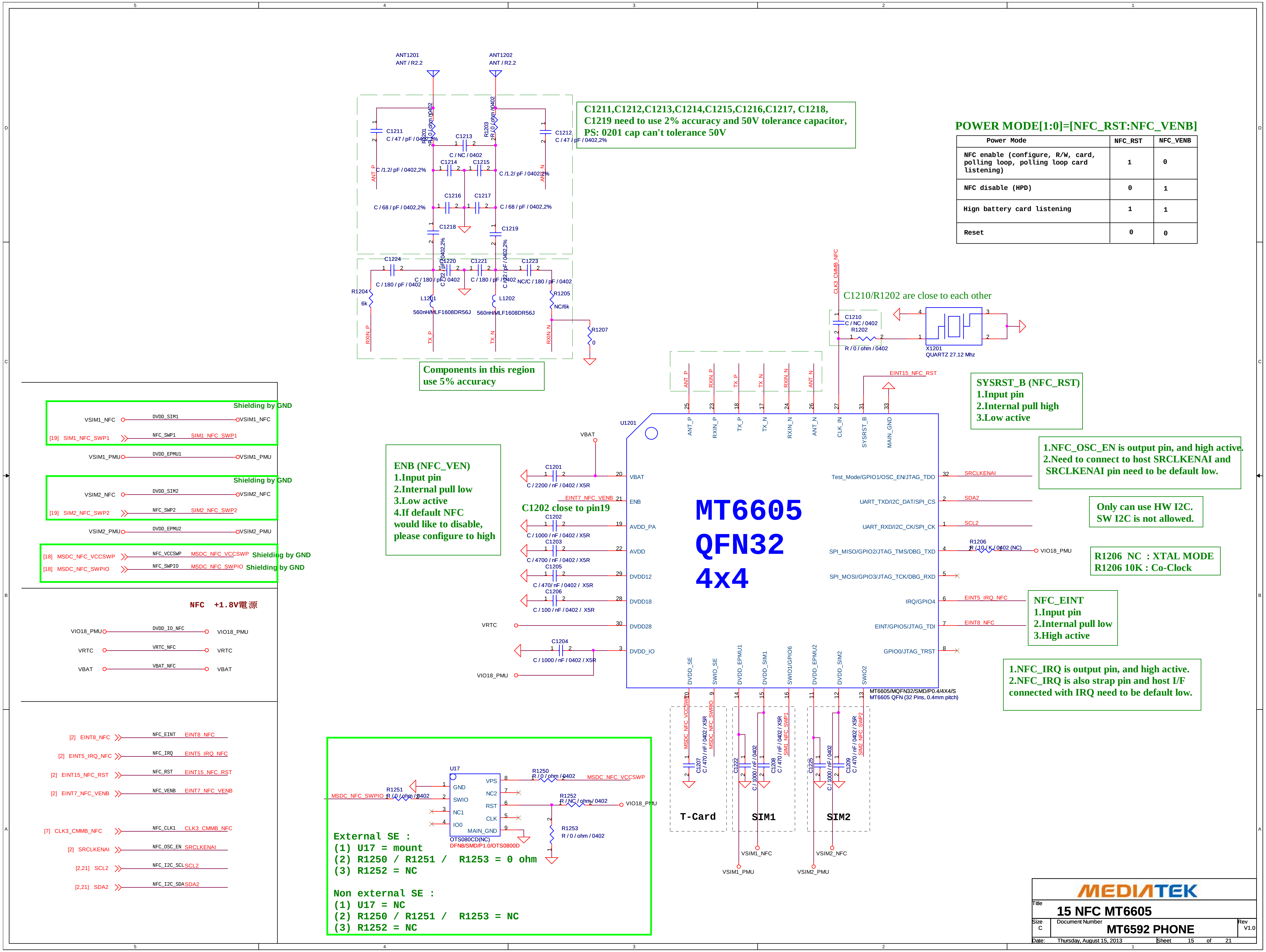

POWER MODE[1:0]=[NFC_RST:NFC_VENB]

Power Mode	NFC_RST	NFC_VENB
NFC enable (configure, R/W, card, polling loop, polling loop card listening)	1	0
NFC disable (HPD)	0	1
Hign battery card listening	1	1
Reset	0	0

Title: 15 NFC MT6605
Size: C
Document Number: MT6592 PHONE
Rev: V1.0
Date: Thursday, August 15, 2013 Sheet 15 of 21

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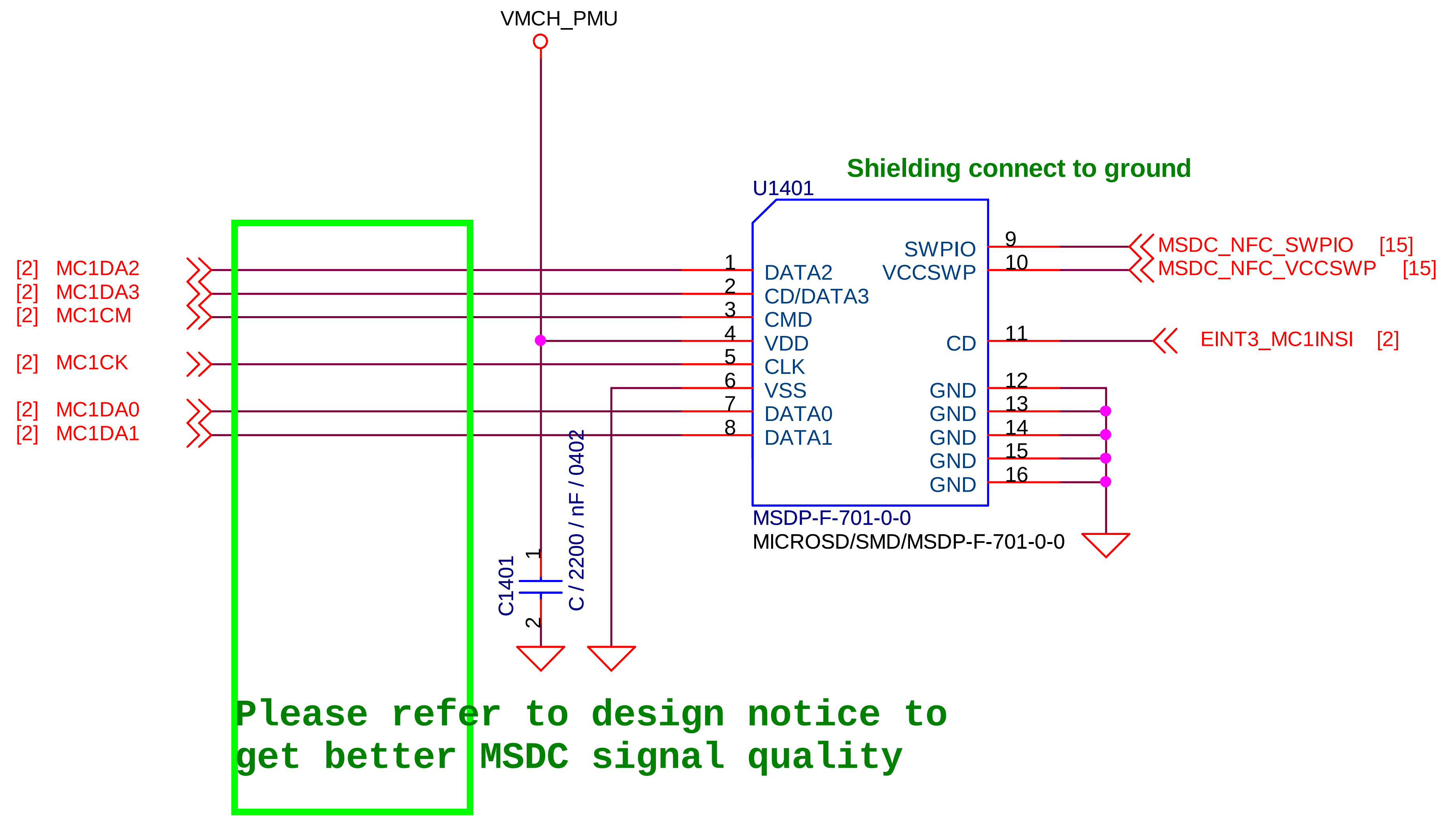
SD CARD



MEDIATEK

Title	18 Memory CARD	
Size A	Document Number MT6592 PHONE	Rev V1.0
Date: Thursday, August 15, 2013	Sheet 18 of 22	

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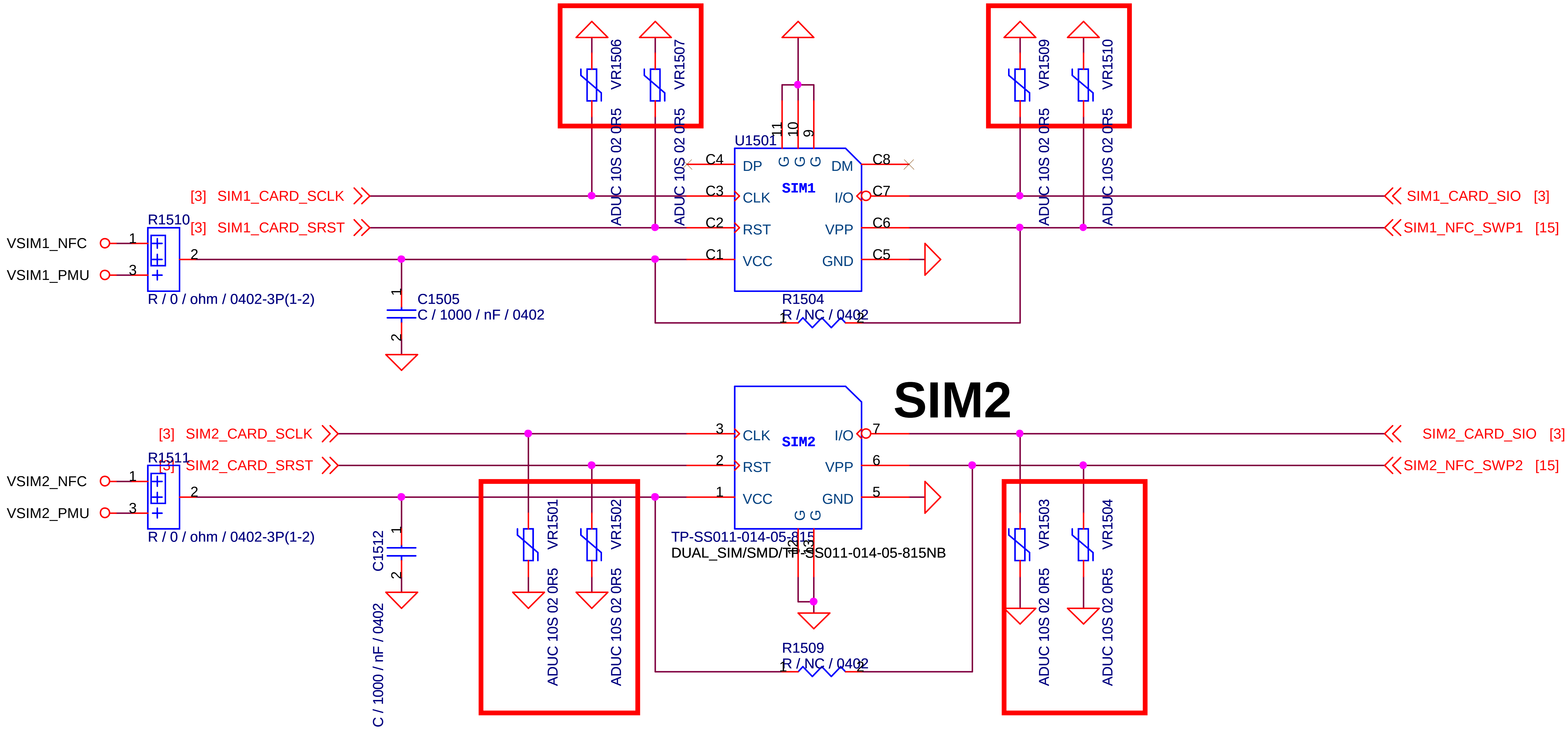
SIM1 & SmartCard

VR1506 / VR1507 / VR1509 / VR1510 are for ESD ehnhace proposal.
They can be cancel for cost-down proposal



SIM2

VR1501 / VR1502 / VR1503 / VR1504 are for ESD ehnhace proposal.
They can be cancel for cost-down proposal

MEDIATEK

Title	19 Dual SIM	
Size: Custom	Document Number: MT6592 PHONE	Rev: V1.0
Date: Thursday, August 15, 2013	Sheet 19 of 21	

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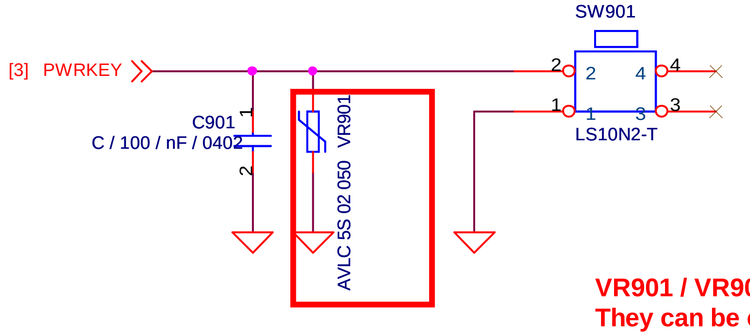
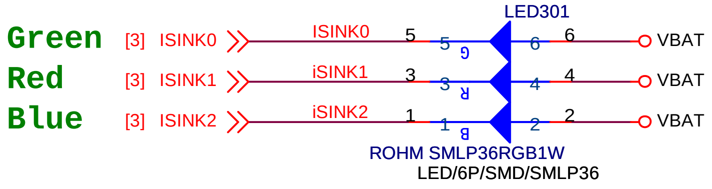
Power Key

DO NOT put pull-up resistor on PWRKEY

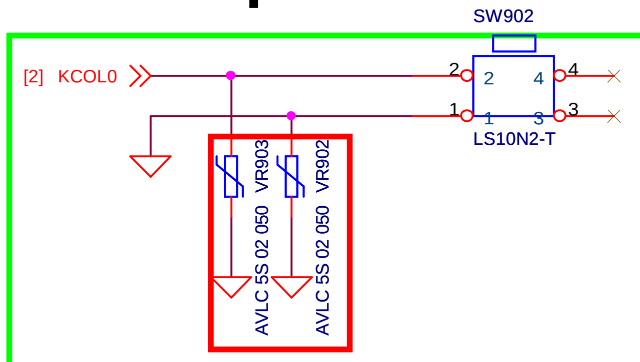


VR901 / VR902 / VR903 / VR904 / VR905 are for ESD ehnhace proposal.
They can be cancel for cost-down proposal

Indicator LED



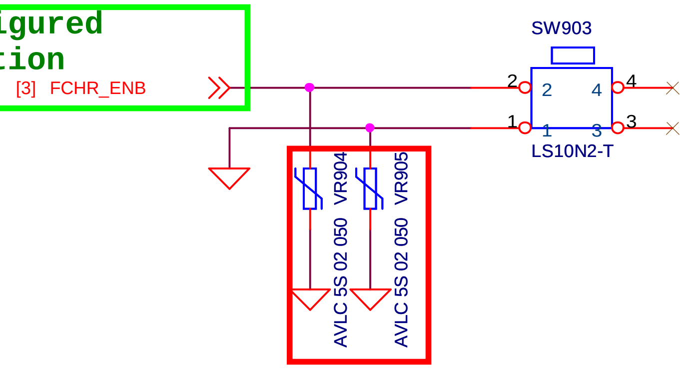
Volume Up



	KCOL0	KCOL1	KCOL2
KROW0	KEY 1	KEY 2	KEY 5
KROW1		KEY 3	KEY 6
KROW2		KEY 4	KEY 7

Volume Down

FCHR_ENB can be configured
as a normal key function



Notice :
There are 3 options for "Long press to shutdown" function
1.PWRKEY + FCHR_ENB
2.PWERKEY only
3.FCHR_ENB only

During download mode, defalut = PWRKEY + FCHR_ENB
For other case (exclude download mode), defalut = PWERKEY only

MEDIATEK

Title: 20 Key LEDs		
Size: B	Document Number: MT6592 PHONE	Rev: V1.0
Date: Thursday, August 15, 2013	Sheet 20 of 22	

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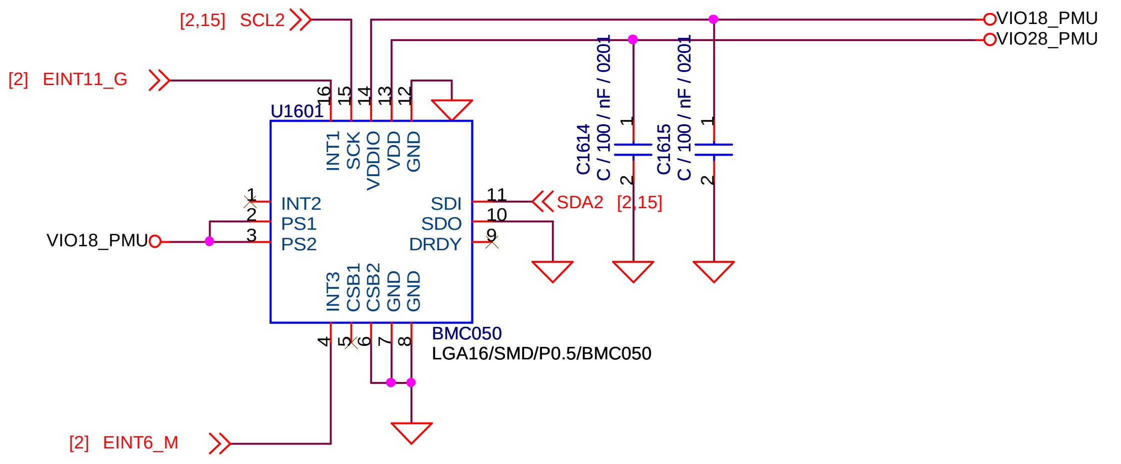
G+M-Sensor

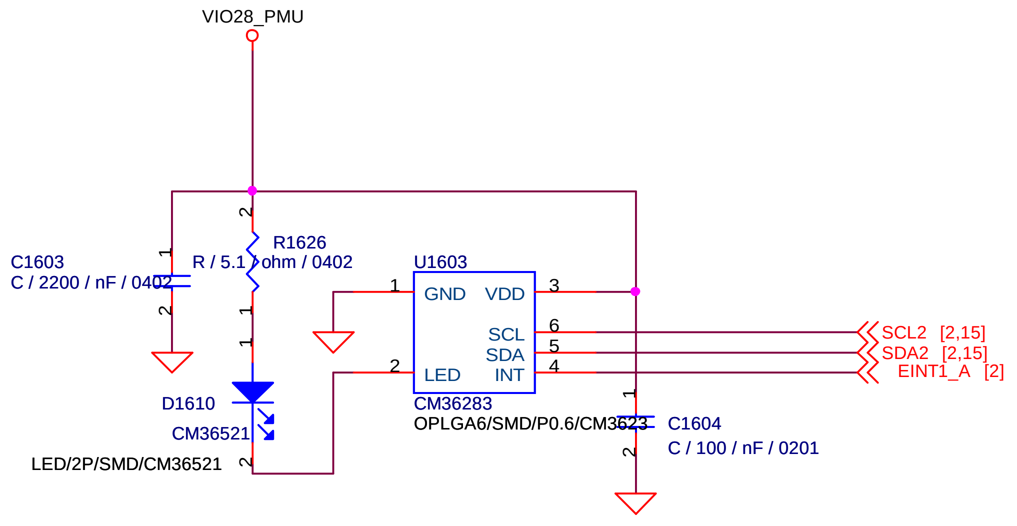
G Sensor I2C address : 0x18
M Sensor I2C address : 0X10



CSB2 pin	SDO pin	Accelerometer part I²C address	Magnetometer part I²C address
GND	GND	0x18	0x10
GND	VDDIO	0x19	0x11
VDDIO	GND	0x18	0x12
VDDIO	VDDIO	0x19	0x13

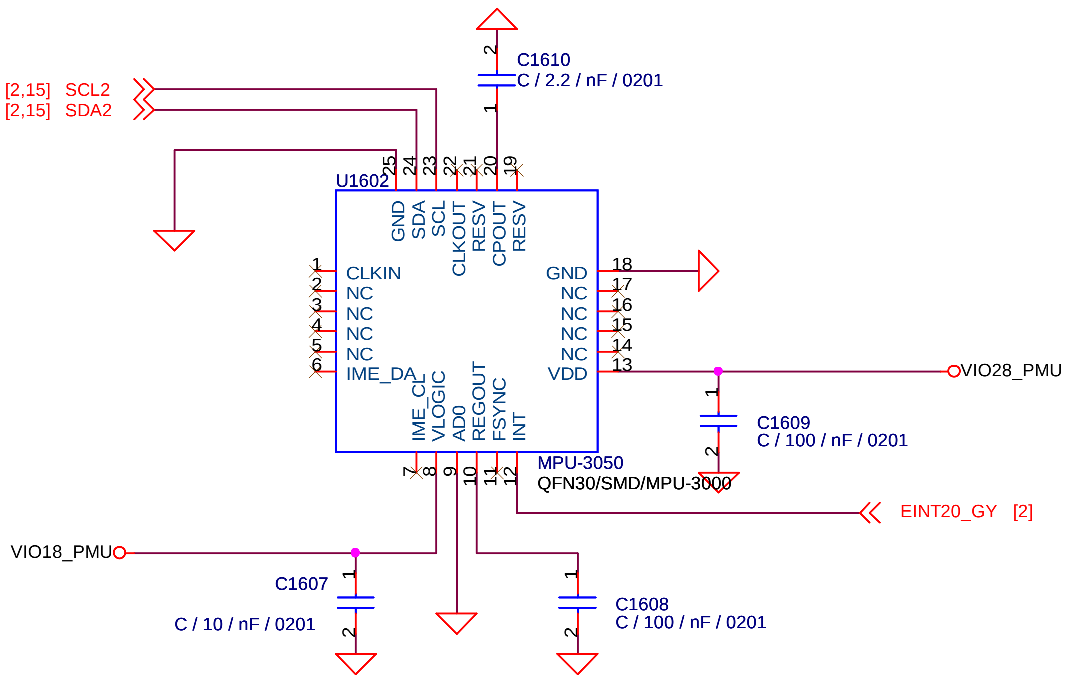
ALS & PS Sensor

I2C address: 0X60



Gyro Sensor

I2C Address: 0x68 (Write:0xD0, Read:0xD1)



MEDIATEK

Title
21 Sensors

Size	Document Number	Rev
B	MT6592 PHONE	V1.0

Date: Thursday, August 15, 2013 Sheet 21 of 22

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5 4 3 2 1

D D

C C

B B

A A

MEDIATEK

Title
98 Block Diagram

Size	Document Number	Rev
B	MT6592 PHONE	V1.0

Date: Tuesday, August 13, 2013 Sheet 98 of 22

5 4 3 2 1

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Version History

Date	Version	Page	Description
2013/07/15	V0.17	All	1st release, sync with WTG version (MT6592_MT6166_MT6625_MT6322_MT6333_EMMC_LPDDR2_WTG_V017.DSN)
2013/07/30	V0.18		**MT6333 switching charger function de-feature (Need to add external SWCHR)**
		02	1. Add GPIO_CHG_EN/GPIO93_DRVVBUS trace
		03	1. Add R335, MT6322 pin N13 (CHRLDO) connect to R335, then connect to VBUS_1 2. R330.1 connect to VUBS_1
		04	1. Delete R813/C839/U3/R817/R1812/C1815/R335 2. Change C1809 to 1uf 3. Add R341/C1810 for ESD protection 4. Delete ISENSE/BATSNS net 5. Change C1806 location (close to MT6333) 6. Add U402 and related circuits
		02	1.R221 change to 43 ohm (1%)
2013/08/14	V0.19	03	1.Add R328 / R326 and related connection for external SWCHR
		02	1.Update EFUSE power notice
		04	1.Update C406 recommend value to 33nF for BQ24158 2.Add MT6333/External SWCHR I2C address
		14	1.Add VR1403 for ESD enhance proposal

MEDIATEK

Title: 99 Version History

Size: C | Document Number: MT6592 PHONE | Rev: V1.0

Date: Thursday, August 15, 2013 | Sheet 99 of 22

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